

26. – 30. (CANCELED)

31. (AMENDED) A synthetic oligonucleotide of at least approximately 30 nucleotides in length and comprising a 5mCpG dinucleotide, wherein the 5mC is a C-5 methylcytosine, and which comprises a nucleotide sequence selected from the group consisting of TGACGTCA and SEQ ID NOS: 1-4, 6-12, 14-15, 18-101, 103, 105, 107 and 109, wherein the synthetic oligonucleotide comprises a phosphorothioate nucleotide.

32. (AMENDED) The synthetic oligonucleotide of claim 31, wherein the DCMTase is from a mammal, bird, fish, amphibian, reptile, insect, plant or fungus.

33. The synthetic oligonucleotide of claim 32, wherein the mammal is a mouse or a human.

34. A synthetic oligonucleotide comprising a 5mCpG dinucleotide, wherein the 5mC is a C-5 methylcytosine, and wherein the synthetic oligonucleotide comprises a nucleotide sequence selected from the group consisting of SEQ ID NOS: 1, 2, 4, 6-8, 13, and 16-110.

35. (CANCELED)

36. The synthetic oligonucleotide of claim 34, wherein the oligonucleotide is approximately 15 to approximately 70 nucleotides in length.

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37. (AMENDED) The synthetic oligonucleotide of claim 34, wherein the oligonucleotide is approximately 15 to approximately 50 nucleotides in length, and wherein the nucleotide sequence is selected from the group consisting of SEQ ID NOS: 1, 2, 4, 6-8, 13, 18-101, 103, 105, 107 and 109.

38. (AMENDED) The synthetic oligonucleotide of claim 34, wherein the oligonucleotide is approximately 20 to approximately 30 nucleotides in length, and wherein the nucleotide sequence is selected from the group consisting of SEQ ID NOS: 1, 2, 4, 6-8, 13, 18-101, 103, 105, 107 and 109.

39. (AMENDED) The synthetic oligonucleotide of claim 34, wherein the oligonucleotide is approximately 30 nucleotides in length, and wherein the nucleotide sequence is selected from the group consisting of SEQ ID NOS: 1, 2, 4, 6-8, 13, 18-101, 103, 105, 107 and 109.

40. (AMENDED) The synthetic oligonucleotide of claim 34, which comprises a phosphorothioate, deoxyribonucleic guanidine (DNG), or ribonucleic guanidine (RNG) oligonucleotide.

41. A synthetic oligonucleotide comprising a 5mCpG dinucleotide, wherein the 5mC is a C-5 methylcytosine, and wherein the nucleotide sequence of the synthetic oligonucleotide is a sequence selected from the group consisting of SEQ ID NOS: 1, 2, 4, 6-8, and 13-110.

42. (AMENDED) The synthetic oligonucleotide of claim 41, which comprises a phosphorothioate, deoxyribonucleic guanidine (DNG), or ribonucleic guanidine (RNG) oligonucleotide.

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43. (AMENDED) A pharmaceutically acceptable salt of a synthetic oligonucleotide of at least approximately 30 nucleotides in length and comprising a 5mCpG dinucleotide, wherein the 5mC is a C-5 methylcytosine, and wherein the synthetic oligonucleotide comprises a phosphorothioate nucleotide.
44. A pharmaceutically acceptable salt of the synthetic oligonucleotide of claim 34.
45. A pharmaceutically acceptable salt of the synthetic oligonucleotide of claim 41.
46. (AMENDED) A composition comprising a synthetic oligonucleotide of at least approximately 30 nucleotides in length and comprising a 5mCpG dinucleotide, wherein the 5mC is a C-5 methylcytosine, and wherein the synthetic oligonucleotide comprises a phosphorothioate nucleotide, and a pharmaceutically acceptable carrier.
47. A composition comprising the synthetic oligonucleotide of claim 34 and a pharmaceutically acceptable carrier.
48. A composition comprising the synthetic oligonucleotide of claim 41 and a pharmaceutically acceptable carrier.
49. (NEW) The synthetic oligonucleotide of claim 34, wherein the DCMTase is from a mammal, bird, fish, amphibian, reptile, insect, plant or fungus.
50. (NEW) The synthetic oligonucleotide of claim 49, wherein the mammal is a mouse or a human.